

## Blue Waters Course Allocation Report

For CS 598, Winter 2015 (March-May 2015)

William Gropp, lead instructor, University of Illinois at Urbana-Champaign

The course, “Designing and Building Applications for Extreme Scale Systems,” was a graduate-level special topics class offered by the University of Illinois at Urbana-Champaign and also offered at the University of North Dakota and the University of Wyoming through the virtual school. There were 38 students registered at Illinois (along with an account for the TA), and 6 at Wyoming and North Dakota (along with accounts for the TAs and instructors at those institutions).

The course included several assignments on Blue Waters, including ones that explored parallel file system performance, as well as the opportunity to use Blue Waters for the required class project. My expectation was that most of the class would make use of Blue Waters for their class projects, and the allocation request was based on that, and in particular, on large-scale scaling experiments. However, most of the class choose to use other systems for their projects, and the projects that did use Blue Waters did not run tests at extreme scale. As a result, the project used only a small fraction of the allocated time, specifically, 4017 node-hours. Most of the class used only about 10-100 node-hours for the assignments; 5 students were used about  $\frac{1}{2}$  of the total time used.

The students found their access to Blue Waters to be valuable; in particular, the parallel I/O exercise would be hard to perform on most other platforms (simply because of the performance of the I/O system on Blue Waters compared with most other cluster and even supercomputer platforms). The projects that used Blue Waters also found it useful. Overall, the experience was very good. The allocation process was good; the process itself was simple, but the details including getting the accounts set up hit a few snags. The Blue Waters system itself was excellent. The documentation was very good (there were some problems caused by out-of-date documentation and by documentation that was not correct for the access method used by the students). There was no training provided by Blue Waters.

This class is being taught again and time will be requested, though the allocation request will be adjusted to take into account the experiences with the student projects and the assignments.

### Details

Contacts at each institution for the Blue Waters accounts:

UIUC: William gropp, [wgropp@illinois.edu](mailto:wgropp@illinois.edu)

University of Wyoming: Craig Douglas, [cdouglas@uwyo.edu](mailto:cdouglas@uwyo.edu)

University of North Dakota: Ron March [rmarch@cs.und.edu](mailto:rmarch@cs.und.edu) and Travel Desell

[tdesell@cs.und.edu](mailto:tdesell@cs.und.edu)

Total number of accounts requested: 41 for UIUC, 8 for Wyoming, 4 for North Dakota.

Class material linked at <http://wgropp.cs.illinois.edu/courses/cs598-s15/index.htm>